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ABSTRACT

This study focuses on the question of "emotional style," defined as the structure or lack of structure in the interaction between teacher and student. Characteristics of "open" and "structured" teachers and students are defined. It is hypothesized that a matching of teacher and student emotional style will result in greater student achievement. A review of research into teacher-student matching by emotional style is undertaken, and a description of instruments used for data gathering in the present study is given. Phases of the study are defined as: (1) determine the general academic achievement of those upper elementary school students assigned to each of two identified (teacher/open and teacher/structured) classrooms; and (2) compare those students who closely matched the teacher in terms of style to those taught by teachers not matching their own style. Results of phase one indicated that there was no significant difference in achievement between students in a structured and open classroom when the students were nonsystematically assigned to those classrooms and resulted in groups of similar ability and the same average attitude toward structure. Results for phase two did not indicate that matching students with teachers of the same measured style produced higher achievement. It did indicate that students who were classified as open had higher achievement than students who were classified as structured, regardless of the attitude of the teacher as defined by the classroom. It is summarized that the study seems to indicate that in addition to intellectual ability, personality factors, cognitive style factors, and other factors, there seems to be a difference among students in terms of emotional structure or style, since students who were classified as "open" showed superior achievement, regardless of the classroom or the measured style of the teacher, over students who were classified as more structured. Suggestions for further research are discussed. (MJB)

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MATCHING TEACHER AND LEARNER STYLES

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Matching Teacher and Learner Styles

In the Fall of 1974, the City of Springfield, Massachusetts instituted a desegregation plan, adopted by the Massachusetts Department of Education, at the direction of the Supreme Judicial Court of Massachusetts. That plan called for the cross-busing of about one third of the elementary students of the city. It did not, however, address the ethnic isolation of Puerto Rican students clustered in the north end of the city.

In the Fall of 1975, after almost ten years of planning and construction, the New North Community School was opened to upper elementary students in the north end of the city. The school was capable of enrolling 1100 students and contained some of the finest educational resources available. The school contained ten large open areas or classrooms each of which had a small classroom attached for special educational purposes. Stephen Wollmer (1976) in describing the magnet program in Springfield said:

> In November, 1975, the city of Springfield received an ultimatum from the State Department of Education: The three elementary schools in the heavily Hispanic North End had to be integrated. One option was to create three magnet schools to attract non-Hispanic students to the district.
>
> A 40-member Magnet Planning and Development Committee enlisted teachers, administrators, parents and community leaders, who met regularly with task forces composed of teachers, administrators and parents from each school.
>
> Today, one year later, more than 200 students from other Springfield schools attend the Brightwood, Lincoln and New North elementary schools, and hundreds more await the opportunity.
>
> All were drawn by the promise of enrichment programs spanning basic study areas, and programs born of a year of workshops, planning sessions, and visitations involving the entire community.

Parents, given the opportunity to expose their children to accelerated reading and math programs, theater arts, communications, conversational Spanish, expanded physical education and science, and extracurricular "mini-courses", all emphasizing individualized instruction and advancement, applied in numbers too great to be accommodated.

Inside New North is a series of connected, yet autonomous environments: 10 classrooms, a planetarium, a swimming pool, a triple gymnasium, a book bindery, a music laboratory, and a theater. The school also has a city branch library, a community center, a health center, a child guidance center, a senior citizens center, and a pre-school program, all of which make it a true community school.

The new school possessed an inherent drawing power, a reality recognized by the magnet planning committee. All fourth graders in the city were bused to New North for a full day to view the options open to its 1,000 fifth and sixth graders. The visit succeeded in generating citywide interest in the school's magnet potential.

Thus, in order to reduce the isolation of Puerto Rican students in the north end, the Springfield School Department instituted an open-enrollment plan to attract non-minority students from across the city to attend New North. One of the attractions proposed called for the matching of student and teacher styles to accomplish optimal achievement potential. In the words of the principal, "In addition to the magnetic characteristics of the facility and staff, the New North will feature a variety of teaching styles to match the learning styles of individual students. The parent, teacher and student will work together in identifying the teaching-learning style and the environment that is most appropriate for each child" (Dryden, 1976, p. 3).

During the month of June, 1976, New North teachers discussed with administration, their educational philosophies, teaching techniques, and classroom management ideas, and were given the option of forming new teams. Eight of the ten classroom teams opted to change members to achieve teams which would be more compatible philosophically and which would reflect a style of teaching which would emphasize that philosophy. Apparently, style somehow referred to philosophy, teaching technique, and classroom management or some combination. What would correspond to student style that could be matched?

During a four week summer workshop in July, 1976, the teachers worked together in their newly formed teams to explore the organization and devise pilot studies which they would like to pursue throughout school year 1976-77.

A continuum was constructed to indicate how the teachers view their present style. At one extreme was the traditional pattern of an individual teacher instructing one classroom of children. At the other was the idea of "openness", children directing their own learning with the guidance of a team of teachers. Here there was emphasis on a flexible child-centered curriculum. They learned not only basic skills, but they also learned to take the initiative for their own education. A project time in which groups and individuals engaged in projects was established, along with another period of time each day where children were expected to work on basic skills in language arts and math in small groups or on an individual basis. A sense of teacher centeredness or student centeredness seemed implicit in the evergoing style concept.

Where did the idea come from that achievement would be higher if the style of learning was matched to the teaching style of the teacher? How could the various styles be determined for both teacher and student? What was meant by the term style for the students? These were a few of the questions that

needed to be answered by the evaluation team that was charged with determining whether or not the provision for such matching was carried out and to what extent it was done effectively. There were no quick answers to any of the questions included in the proposal, and conversations with the task force teachers also yielded no definite answers.

Historical Persepctive

The traditional model for defining teacher effectiveness has been a model of competency, of finding and vertifying outstanding behaviors that characterize the effective teacher. Perhaps exemplifying this tradition was the conclusion reached by Hamachek (1968) that "Even though there is no single best or worst kind of teacher, there are clearly distinguishable characteristics associated with good teachers. Generally speaking, they are persons who know their material and who are basically warm, responsive, flexible individuals who seem as sensitive to relationship variables as they are to cognitive variables" (p. 201). Thus, all that was needed for excellence in teacher effectiveness was to identify the exemplary characteristics and train preservice teachers to have them.

However, we all know of teachers, who far from being warm and flexible, were tough as drill sergeants and caustic as sandpaper. They smiled once a year just before handing out the final grades on the last day of school. Yet such teachers have been revered for years afterward for their effectiveness with such prosaic gems as, "I sure didn't like that teacher, but I sure learned a lot" or, "I really didn't appreciate that teacher until I went on in school and found myself way ahead of the others." We also know of warm, flexible, and interesting teachers that really accomplished very little in terms of the cognitive growth of the students. It seems reasonable that the single ideal type teacher does not exist.

Despite the prevalence of faith in the competency model, the diversity among the faculty of any moderately large system appears to be the rule rather than the exception. Dunn and Dunn (1975) have identified eighteen areas in which differences could be diagnosed: environmental differences due to sound, light, temperature and room design; sociological differences due to peers, self, adults, and various combinations; physical differences due to perception, ingestion, time and mobility; and emotional differences due to motivation, persistence, responsibility and structure. The focus of the present study was on structure, defined by Dunn and Dunn as the "need for frequent supervision and guidance in the learning process." (p. 47) It often implies imposed pressure and tight, inflexible scheduling. Thus, while the focus of the present study was upon structure, the interrelatedness of all the emotional differences broadens the scope of the study to the whole emotional area.

In many ways the heterogeneity seen among teachers is also manifested among students. Such heterogeneity, however, has been almost always defined in terms of ability, or susceptibility to anxiety or even cognitive learning style. It seems that little attention has been paid to emotional style; how do children differ in terms of structure, and how do they interact with teachers of differing structure? For example, Stanley has been succeeding in school but usually by doing his own thing at his own time. Once engaged, Stanley usually produces a superior product. Stanley dislikes routine! Any teacher, regardless of style, feels he or she can teach Stanley. Now Billy back there gets into so much trouble and is so irritating that almost no one can teach him anything. Billy works best when whatever he has to do is well defined and well supervised. Billy needs routine! In terms of emotional style, then, there is wide heterogeneity among students. Billy needs much structure while Stanley needs very little.

It seems almost illogical to assume that there are universal characteristics among teachers or students that lead to optimal learning situations. The solution appears to be in finding the effective teacher for the student at hand. The solution appears to be in matching. It does not appear to be possible to find a teacher who can be effective with such a wide heterogeneous group of students. A more appropriate model, envisioned by the New North task force, may be to operationally define some emotional style characteristics and match those students and teachers who exhibit similar characteristics. The model assumes that students will learn best, and teachers will perform best when such characteristics are in fact matched. The model assumes that every teacher can be effective with some students. It also assumes that every student can learn effectively under some particular teacher.

No one has had a complete set of effective teachers or ineffective ones. No matter how much the educational system has been ineffective for a given student, there was some teacher that was seen as effective; no matter how excellent the system has been viewed by a student, there was some teacher seen as ineffective. The goal of operationally defining effectiveness in terms of behavioral heterogeneity, especially as is related to the emotional style of the teacher and student, was taking shape within the realm of structure.

Defining Style

Style means many things to many people. Some think of style in terms of the mode of processing information inferring that some children learn best when they can see and hear material, others by seeing and feeling, and so forth. Riessman (1976) advised that teachers should be aware of their own strengths and weaknesses in such style and that of their students in order to control the weaknesses and utilize the strengths in changing a poor pattern

of learning.

A large body of information exists defining style as the way in which children think, their cognitive style. Frederick and Klausmeier (1970) outlined three approaches to the identification of Cognitive Style; in terms of reflective-impulsive, in terms of field-dependence-independence, and in terms of information processing; grouping, interpreting and predicting. Their conclusion, like Riessman's, was that teachers should be aware of the cognitive style of students in order to gear their teaching to the student's cognitive style of learning. They suggested that students be given information about different cognitive styles to help them discover when one style may be more effective. Thus, in both of these definitions the style of teacher appears to be entirely flexible and manageable and conscious and able to be geared to needs of students.

Witkin, Moore, Goodenough and Cox (1977) listed four essential characteristics of cognitive style. First, that cognitive style refers to process and not product. Second, that cognitive style dimensions cut across traditionally and perhaps inappropriate student classifications (such as IQ). A third characteristic is that the student's style remains stable although not necessarily unchangeable. Lastly, that the definition allows an operationally bipolar specification. Over the past twenty-five years the dimension of Field-Dependence and Field-Independence has been the most extensively studied dimension of cognitive style. The construct revolves around the task of perceiving a simple figure within a complex pattern, and of determining the extent to which a surrounding organized field has influenced the perception of an item in that field. Thornell (1976, 1977) has described the construct extremes as analytic or global. The analytic style seems to facilitate a

number of cognitive tasks from serial learning to problem solving. Teachers need to help students become more analytical. Witkin et al. (1977) reported two studies that attempted to match students and teachers in terms of cognitive styles. In both studies, the students and teachers tended to view their matched counterparts more favorably than their mismatched counterparts. Achievement variables were not considered.

The focus of the present study was on emotional style defined as the structure or the lack of structure in the interaction between teacher and student. A teacher who is classified as structured tends to create teacher-centered classrooms, demands specific student behaviors, stresses well defined outcomes, rewards covergent thinking, and establishes rather rigid rules. Such a teacher does not necessarily exhibit negative personality characteristics and should not be necessarily viewed as a rejecting person. A teacher who is classified as open tends to create more student-centered classrooms, allows students to establish governing rules and regulations, allows for unexpected outcomes through problem solving, rewards divergent or creative outcomes, and tries to establish fair but flexible rules. Such a teacher could exhibit negative personality characteristics and could possibly be a rejecting person. In short, emotional style should be viewed as independent from personality characteristics.

A student who is classified as open views himself/herself as one who is capable of making choices, sharing in rule making, and taking some responsibility for learning. A structured student sees himself/herself as doing best when conforming to the demands of authority, seeking the correct outcomes, and assumes the teacher has the responsibility for the management of learning. The open student assumes some risk while the more structured student seeks security. The open student operates with more internal locus of control while

the structured student is more external.

Style and Achievement

Implicit in the call for matching teacher and learner style included in the Springfield Public School Magnet Proposal was the hypothesis that such a match would result in greater student achievement than could be attained in classrooms that were unmatched. Most of the research conducted in this area considered the achievement of students in general in various classrooms defined by the style of the teacher.

Early studies reported that the style of the teacher had no effect whatever on the achievement of students. Jayne (1945) found little relationship between a whole set of teacher behaviors and student achievement gain. Lovell (1963) in studying 1329 students assigned to a formal (structured) or informal (open) educational setting, found no significant differences in reading achievement.

Soar (1972) concluded that indirectness of teacher behavior tended to be positively associated with achievement growth, especially when the task was complicated or abstract such as in the area of creativity. For concrete tasks, greater teacher directness was applicable. Soar noted the need for greater knowledge of the pupil variables. "Growing evidence for the existence of complex interactions between classroom behavior, the nature of the learning task, and characteristics of the pupils point strongly to the need for more subtle, more complex, and more extensive research on (actual) classroom learning" (p. 523).

Bennett (1976) in a rather controversial book concluded that students would achieve more in a structured environment than they would in an open situation, especially when the subject matter was in the basic areas of the curric-

ulum. Likewise, Heil and Washburn (Flanders & Simon, 1969) in investigating the effectiveness of certain teacher characteristics indicated that the more variable (open) teachers were more effective in mathematics and science while more orderly teachers seemed to have a positive effect on student reading progress. The emotional learning style of the students was not assessed in any of the studies mentioned.

One aspect of the attempt to match teacher and learner style was the work done by Hall (1970). He examined the concept of Teacher Style compared to student perceptions of the ideal teacher style. He hypothesized that the closer the correspondence between the teacher's style and the student's concept of the ideal style (presumably a measure of the student's style) the higher would be the achievement. Such was not the case. Hall suggested that the reason that the results did not show an increased achievement was that the students were not clear as to the actual teacher style. "Until students become more aware of the particular types of teaching styles under which they perform best, it would appear that analysis of classroom learning in terms of teacher-student fit will not be especially fruitful" (p. 211). His research, however, was conducted at the college level among presumably homogeneous (in terms of emotional style) students.

Support for the hypothesis that greater achievement occurs when teacher style and learner style are matched is nevertheless growing. Gregorc and Ward (1977) ask, "Could it be that the most successful students in a given classroom happen to possess learning preferences that match the instructional method preferences of the teachers? We believe this to be so" (p. 24). Likewise, an earlier attempt to bring together teacher and learner styles was the work of Tuckman (1969). He found that those students that were classified as being

open expressed more satisfaction in the classrooms of those teachers that were also classified as open or non-directive. Dunn and Dunn (1974) concluded their remarks on the emotional aspects of learning style with, "Certainly the student and the program to which the student is assigned should be carefully matched" (p. 276).

The Instruments

Almost fifteen years ago, Medley and Mitzel (1963) reached the conclusion that much of the work on trying to measure effectiveness was irrelevant because teacher effectiveness was so poorly defined and because so few objective measures of teacher effectiveness existed. Howsam (1960) reported various studies on measuring teacher effectiveness and discussed four basic kinds of methodologies. Self-ratings have proved of little use because teachers tend to over-rate their own effectiveness. Ratings by colleagues and other teachers proved to lack validity in that some teachers don't know what other teachers are doing. Student ratings have a vogue and seem to be a reliable source of teacher effectiveness data but lack adequate validity. The fourth type of data was supervisor ratings which in multiple supervisory situations tend not to be highly correlated and seem to indicate the biases of some supervisors.

Rosenshine and Furst (1973) suggested that even classroom observational systems have yielded little information about the interactions that they have reported to have observed. "Observational systems appear to have been used to document desired behavior than to test hypotheses" (p. 161). They indicated that the cognitive style of the individual learner was one of a number of variables that have seldom been included in correlational or experimental studies. More recently, the rating of teacher behavior has been done by students, but with very little attention paid to the methodology of teacher ratings.

Medley and Mitzel (1959) examined a great number of student climate measures including self-rating, principal rating, student rapport, emotional climate, and social organization. Many of the correlations reflected the teacher's ability to get along with the students rather than to define structure. Since emotional style involves motivation, philosophy, structure, and similar dimensions, it seemed reasonable that data gathering instruments would come from either interactional or attitudinal sources. Scales from Flanders (1967) or Withall (1949) were considered but not used since neither really defined emotional style differences among students. Such scales tell a great deal about the climate and interactions in the classroom, and thus a fair amount about the emotional style of the teacher.

An attitudinal scale that was adapted for this study was the Attitude Toward the Freedom of Children Scale originally developed by Koch, Denler, Dysart and Streit in 1934 as reported in Shaw and Wright (1967, pp 42-45). This scale is a Thurstone type scale of equal appearing intervals consisting of 33 items as shown in Appendix A. Two forms of the scale were available but only Form 1 was used. Each of the teachers was asked to put a check mark next to all those items with which they absolutely agreed. The scale values of those items were added and divided by the number of items checked to obtain a mean scale value. The between forms reliability, as reported in the original study by the author, was .68, and the reliability of scale values, obtained from two groups of 100 judges, was .97. Shaw and Wright, in commenting about the scale, said that unlike most scales, the validity of the Attitude Toward the Freedom of Children Scale has been relatively well established. The scale was originally reported in Child Development (1934), Volume 5, pp. 253-266, and was copyrighted in 1934 by the Williams and Wilkins Company of Baltimore, Mary-

land. Teachers who agreed with those items that stressed orderliness and discipline in the classroom or also with those items that greatly limited the freedom of children generally were defined as teachers with structure. Those teachers that agreed with those items that stressed student choice and did not limit the freedom of children were defined as being more open.

The Semantic Differential is a graphic rating scale originated by Osgood, Suci, and Tannenbaum (1957) consisting of a number of bipolar adjectives. Most scales involve three factors; evaluation, potency and activity. The Semantic Differential is a widely used research instrument and was thought to be adaptable for this study. However, for this particular study only one factor, that defining structure, was used to evaluate teachers' style. The scale is shown as Appendix B.

McDowell (1975) did some work in developing the Semantic Differential for use by students in evaluating teachers. He noted the limited data to support the validity of the student evaluations in general and the reliability and the validity of such instruments used to measure teacher credibility. The results of his study, however, supported the use of the Semantic Differential as a method of teacher evaluation. The major problem addressed in this study was not whether the teachers were simply effective or not but whether or not individualistic teaching style could be measured and matched to measured student learning style to optimize effectiveness.

The assessment of student emotional style presented a different problem in that the children were not old enough to reliably report their style on either the Semantic Differential or the teacher's attitude scale. It was decided to try and revise the teacher's attitude scale for use with children. The first attempt was field tested in an unaffected school with the result that the children were not able to successfully complete the scale. A second revi-

sion was made with better results. The outcome was an Attitude Toward School Scale shown as Appendix C.

Procedures

In May, 1977, 34 regular teachers at New North were surveyed as to their emotional teaching style using both the Semantic Differential scale defining structure and the Attitude Toward the Freedom of Children attitude scale. The results of the two measures were correlated ($r = .59$, $p < .01$) and found to have a relationship with one another. The top 29% of the teachers on the Semantic Differential scored 27.7, significantly higher than the bottom 29% who scored 20.6 ($t = 4.47$). Likewise, the top group on the attitude scale scored 6.50, significantly higher than the bottom group's 5.06 ($t = 4.04$). The conclusion was made that both scales adequately discriminated between the upper and lower thirds of those teachers surveyed.

When the data was presented to the administration at New North, there was general agreement with the results. One administrator agreed to be surveyed and subsequently confirmed the results as being a valid indicator of that administrator's emotional style.

Based on this measurement of the attitudes of the classroom teachers at New North an assessment was made of each of the classrooms to determine if there were differences. Each of the classroom teams had been reformed on the basis of each teacher's philosophy, teaching technique, and classroom management. The correspondence was very close with the teachers in Classroom 10 having a more open attitude than teachers in other classrooms and with teachers in Classroom 8 having a more structured attitude than teachers in the other classrooms.

There was a significant difference then between Classroom 8 and Classroom

10 in terms of teacher attitude. While the administration agreed that the four teachers in Classroom 10 were probably more "Open" than others and would probably work well together, those teachers had not been assigned to Classroom 10 on the basis of their attitude scores. That the difference was significant suggested that the two classrooms do in fact differ in teaching style. There was, however, no distinct difference between the Structured Classroom 8 and the other non-designated classrooms (Classrooms 6, 7, and 9).

No special attention was given to either Classroom 8 or 10 during the course of the study. Observation within the classrooms was done casually and generally uniformly. No student, however, was taught in a traditional, "thirty-pupil" classroom as popularly envisioned. Classrooms 1-5 were reserved for Grade 5 students while Classrooms 6-10 housed Grade 6 students, 283 of which were the subjects of this study.

Classroom 8 and Classroom 10 at New North are both large spaces designed to accomodate approximately 100 students each in a variety of groupings. Such an arrangement has traditionally been thought of as an "open classroom". The teachers in Classroom 8 arranged the physical properties within the large area to define space for teaching groups in A, C, F and D as shown in the diagram below. The area in B and E was left for individual student work or for times when more than one group wanted to meet together. Observation showed that the four teachers generally worked in a traditional manner, talking to the "class" from "in front" and responding to raised hands.

C	F
B	E
A	D

The teachers in classroom 20 made use of areas B, C, F and E, defining the four areas reasonably well. Space at A and D was used for either individual work or special group instruction. Observation revealed that the teachers were interactive with the class in moving among the students to respond to questions.

At the close of the last school year, the students in Grade Five of New North were asked to respond to the Attitude Toward School scale that was adapted from the teacher scale especially designed for this study. The students were ranked according to their attitude scale score with the highest scoring 80 being classified as needing structure and the lowest scoring 80 classified as being more open. The two groups were significantly different (t = 25.08).

At the beginning of school year 1977-78, the students were assigned to their sixth grade classrooms on a more or less random basis with some parental choices being granted. An investigation of the attitude scale scores for the students in each of the sixth grade classrooms revealed no significant differences. In general, all of the sixth grade classrooms had children with the same average attitude scale score.

The measure of ability (IQ) was the Short Form Test of Academic Aptitude which was given in November, 1977, in conjunction with the Comprehensive Test of Basic Skills. The results were reported in terms of IQ and showed no significant differences among any classrooms not even between the classrooms with the largest and smallest mean values (t = 1.53). Thus, the assignment of students to Grade 6 classrooms was considered "pseudo-random" and resulted in generally equal ability among the student groups.

Achievement was measured by the Comprehensive Test of Basic Skills (CTBS) and reported in terms of the Total Battery Scale Score, the dependent variable

for this study. Effectiveness has been traditionally defined in terms of academic achievement within the school context. Other outcomes, no matter how highly valued by the individual or society, have been secondary to that of achieving learning in the basic skills. Failure in schools has always been defined as the lack of academic achievement by the graduates of those schools.

The study was conducted in two phases. The first phase of the present study was to determine the general academic achievement of those students assigned to each of the two identified classrooms. Did teachers, identified as being more direct or structured, produce greater achievement for all of the students in their charge compared to teachers identified as being more indirect or open? Was there a general difference in achievement between Classroom 8 and Classroom 10?

The second phase of the present study was to compare those students who closely matched the teacher in terms of style to those students taught by teachers not matching their own style. Do matched students have significantly superior achievement compared to those students that were not matched? Do open students in Classroom 10 and structured students in Classroom 8 have higher achievement scores than their unmatched classmates?

Results

The results for the first phases of the study are displayed in Table 1. There was no significant difference between the mean values for the students in any of the five classrooms for either ability, achievement, or attitude. There was a difference between Classroom 10 and all of the other sixth grade classrooms, especially Classroom 8, in terms of teacher attitude. This difference, of course, formed the basis for identifying the structure of the classroom.

Insert Table 1 about here

One of the conclusions that Bennett (1976) advanced in his book was that students would achieve higher academic scores in basic studies in structured classrooms and have less achievement in more open situations. Were he correct, students in Classroom 8 would score higher than students in Classroom 10, shown to be taught by teachers classified as more open. The results of the first phase of the present study do not support Bennett's conclusion. Students in Classroom 8 actually scored the lowest of the five classrooms.

Rogers and Baron (1977) have suggested that Bennett's study may have had some technical flaws. Educational research within the context of regular educational classrooms is most difficult to perform and to reasonably control the number of extraneous variables.

The results of the second phase of the study, comparing the performance of students who have been matched on the basis of emotional style, were not entirely as predicted. The analysis of variance, as shown in Table 2, revealed a main effect for students classified as open. Open students had higher CTBS scale scores than more structured students regardless of the attitude of the teacher which determined the classification of the classroom. Those students who were classified as structured and found in structured classrooms had the lowest scores for any of the groups.

The interaction effect that would have supported the hypothesis that optimal achievement is attained over the dependent variable when indirect students are associated with indirect teachers and when direct students are associated with direct teachers was not significant.

Insert Table 2 about here

In summary, the results of the first phase of the present study have led to the conclusion that there was no significant difference in achievement between students in a Structured and Open classroom when the students were non-systematically assigned to those classrooms and resulted in groups of similar ability and the same average attitude toward structure. In any given classroom there were students of high ability and low ability as well as students who reported preference for a lot of structure and students who would presumably function well with more independence. Much structure alone does not seem to be associated with higher achievement; in fact, in this study, it appears to be associated with lower achievement.

The results for the second phase did not show that matching students with teachers of the same measured style produced higher achievement. The results indicated that students who were classified as open had higher achievement than students who were classified as structured regardless of the attitude of the teacher as defined by the classroom.

Discussion

Why should students who are classified as open show superior achievement to those students classified as structured, regardless of the teaching style of the teacher? And why should students classified as structured and learning in structured classrooms exhibit significantly lower achievement than open students?

There may be a number of possible explanations for the particular results, but in this discussion only two will be considered. In the first place, it may well be that students who have been classified as open by their performance on

the attitude scale may be better students. Dunn and Dunn (1975) concluded, "The motivated, persistent, responsible student frequently requires less structure than his opposite" (p. 47). The motivated, persistent, responsible student is just the kind of student that would get higher achievement scores. Students who are the opposite, who are not motivated, not persistent, not responsible are perhaps those students who must have structure and need structure. By implication, students who need less structure achieve more than those students who need more structure in order to achieve. Thus, instead of showing a need to match emotional variables for maximum effectiveness, this research has only added one more means of classifying differences among students. Students with high ability have higher achievement, and students who are analytical, rather than global, have greater school success. Perhaps those students whose emotional structure tends to be more open have higher achievement as well.

The correlation between the IQ scores of all 283 students and their attitude scores was -.03 showing no relation overall between the attitude of the students and their measured ability. The similar coefficient for attitude and achievement was -.02, again indicating no overall relationship. If open students were simply superior students, then there should possibly have been some relationship between the variable that measured openness and the variable that measured scholastic superiority. That there was no relationship suggested that another explanation was needed.

Perhaps there was another reason as was shown in the description of the school and the classrooms. There were no self-contained "30 pupil" classrooms. The teaching areas were large open areas in which all of the teachers had to create the structure they wanted by manipulating their furniture. A highly defined classroom area for less than 30 children was at best a difficult arrangement to make in any of the large areas in New North. Open space and team teach-

ing through cooperative planning was encouraged. While the majority of teachers at New North described themselves as having structure with a relatively few describing themselves as being open, no teacher was able to achieve a traditional structured classroom. All of the students were taught in a basically open area perhaps tending to favor open students. On the other hand, structured students who saw themselves as needing structure were never able to be in a truly structured situation. Only those students in an open situation were able to achieve a match.

Assuming that this latter hypothesis was a reason for the superiority of open students at New North, then further research is indicated. It is planned to replicate the study in a location that is not open, to conduct a similar survey in a structured school. In this replication, regardless of the measured attitude of the teachers, all of the students will be instructed in a structured situation. Should structured students, regardless of attitude of the teacher, have significantly higher achievement than open students, then the structure of the school would appear to be the important matching characteristic, overshadowing the attitude of the teacher. If, on the other hand, open students continue to show superior achievement, even in this more structured situation, then it would appear that open students do have an achievement superiority regardless of the school or the attitudinal style of the teacher.

As was noted earlier in the introduction, traditional pre-service teacher education, using the model of competency, has tended to focus on the development of those skills and characteristics which generally identify the competent teacher. Finding specific differences among students has tended only to mitigate this model in that teachers may become informed about those differences among students, whether those were differences in IQ, cognitive style or structure. Teachers were then trained to identify those differences in order to

consciously alter their teaching methodology to optimize the learning for those different students.

The model could be shown to be inadequate if optimizing student achievement depended at least in part on certain characteristics of the teacher. This situation would be brought about by showing achievement to be greater in a matched situation. Attention would have to be paid to the recognition and use of each individual teacher's style or structure. The implications of pre-service and even in-service education for this particular model would be very numerous and would tend to show that individuals with varying degrees of emotional structure could be effective in certain situations with certain children. However, the hypothesis of higher achievement in matched situations was not confirmed and such an hypothesis may have to wait for further research.

In summary, the results of this study seem to indicate that in addition to intellectual ability, personality factors, cognitive style factors and other factors, there seems to be a difference among students in terms of emotional structure or style. Students who were classified as open students showed superior achievement, regardless of the classroom or the measured style of the teacher over students who were classified as more structured. There were no differences in achievement between students in open classrooms and structured classrooms.

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Table 1

Mean Values Grouped by Classroom

	Students	Ability	CTBS Achievement	Student Attitude	Teacher Attitude
Classroom 6	59	94	432	5.4	5.9
Classroom 7	57	96	429	5.4	5.8
Classroom 8*	56	90	386	5.5	6.0
Classroom 9	49	95	425	5.2	5.7
Classroom 10**	62	86	406	5.4	5.1***

* Identified as a Structured Classroom

** Identified as an Open Classroom

*** Significantly Different from Classroom 8 at .01 level (t = 5.35, SE = .159, df = 116)

Table 2

Analysis of Variance

Mean CTBS Values for Groups of 15 Students

	Classroom Classification		
	Open	Structured	Mean
Open Students	427.4	433.5	430.5*
Structured Students	394.1	409.1	401.6
Mean	410.8	421.3	

* Main effect for students significant at .05, SE = 10.2

APPENDIX A

ATTITUDE TOWARD THE FREEDOM OF CHILDREN

1. A young child must be disciplined until he has learned not to touch those objects in his environment which he cannot handle without damaging.
2. When a child's wants and those of an adult are in conflict, the child should receive the more consideration.
3. Teachers should feel called upon to give reasons to the young child for the restrictions imposed, only when he is capable of understanding.
4. A pre-school child should never be allowed to have his own way.
5. A child who is entangled in a disciplinary problem should be allowed to explain his point of view.
6. A child should be restricted only when he is infringing upon the rights of others.
7. Adults should give no suggestions which will influence the form of a child's play constructs.
8. Play activities should never be supervised.
9. Implicit obedience is always desirable.
10. Leniency in restricting the liberties of a child is better than too much severity.
11. A child's whims and impulsive desires should never be humored.
12. Children should be given reasons for the restrictions placed upon them.
13. It is necessary to teach a child that he cannot always have his own way.
14. A pre-school child should, from the time he shows any inclination to do so, be allowed to choose the dress or suit he is to wear.
15. Children are being allowed too much freedom.
16. The wishes of the child should usually be repeated.
17. I would have the child ask permission before engaging in activities that are new or strange.
18. A pre-school child should be allowed freedom of action except in matters pertaining to his health and physical safety.
19. A child should be forced to obey if he does not do immediately as he is told.
20. I would place no restriction on the child's activity except in times of grave danger to himself or others.
21. A child should be given anything he wants to eat.
22. The child should be allowed free choice in the matter of associates.
23. Matters of conduct should be decided by the teacher and child together.
24. A child should be required to say "please" whenever he makes a request.
25. When a child's wants and those of an adult are in conflict, the adult should be given more consideration.
26. Restrictions should not be imposed when they will discourage the child's spontaneous efforts.
27. A child should be taught to obey an adult unquestioningly.
28. The teacher should choose the group with which the child is to associate but the child should be allowed free choice with respect to his companions within the group.
29. A child should obey his teachers because they are his teachers.
30. The teacher should comply with every demand of the child.
31. A child should be required to obey immediately in matters pertaining to health and physical routine.
32. Children's activities, when they seem to an adult to be destructive or wasteful, should be restricted.
33. A child's playthings are not his to do with as he pleases.

APPENDIX B

TEACHER QUESTIONNAIRE

Please check how you are as a teacher.

		VERY	SOME-WHAT	UNDE-CIDED	SOME-WHAT	VERY	
1.	Fair	___	___	___	___	___	Partial
2.	Spontaneous	___	___	___	___	___	Systematic
3.	Fluent	___	___	___	___	___	Inarticulate
4.	Inflexible	___	___	___	___	___	Adaptable
5.	Kind	___	___	___	___	___	Harsh
6.	Apathetic	___	___	___	___	___	Alert
7.	Consistent	___	___	___	___	___	Changeable
8.	Calm	___	___	___	___	___	Excitable
9.	Confident	___	___	___	___	___	Anxious
10.	Pessimistic	___	___	___	___	___	Optimistic
11.	Democratic	___	___	___	___	___	Autocratic
12.	Progressive	___	___	___	___	___	Traditional
13.	Vocal	___	___	___	___	___	Quiet
14.	Physical	___	___	___	___	___	Nonphysical
15.	Unstructured	___	___	___	___	___	Structured
16.	Formal	___	___	___	___	___	Informal
17.	Ineffective	___	___	___	___	___	Effective
18.	Subjective	___	___	___	___	___	Objective
19.	Permissive	___	___	___	___	___	Authoritarian
20.	Rigid	___	___	___	___	___	Flexible

APPENDIX C

ATTITUDE TOWARD SCHOOL

____ 1. Students should not be allowed to touch things which they might break.
____ 2. When a student and a teacher disagree, the student should have his/her way.
____ 3. Teachers should give reasons for rules.
____ 4. A student should never be allowed to have his/her own way.
____ 5. Students who are in trouble should be able to tell their side of the story.
____ 6. Students should do whatever they want as long as it doesn't bother others.
____ 7. Teachers should not give suggestions about things to do.
____ 8. Students should be able to play whatever they want to on the playground.
____ 9. Students should obey right away.
____ 10. It is better for a teacher to be too easy than too strict.
____ 11. Students must learn that they cannot always have their own way.
____ 12. Students have too much freedom.
____ 13. Teachers should try to give students what they want.
____ 14. Students should ask permission before doing things that are new or strange.
____ 15. Students should be allowed to do anything unless it would be harmful.
____ 16. Students should be forced to do things immediately.
____ 17. Students should be able to eat anything they want to eat.
____ 18. Students should be allowed to choose their friends.
____ 19. The teacher and student together should decide what's right.
____ 20. When a student and teacher disagree, the teacher should have his/her own wa
____ 21. A student should obey a teacher regardless.
____ 22. The teacher should choose the group the student is to be in.
____ 23. Students should obey teachers just because they are teachers.
____ 24. The teacher should do whatever the student asks.
____ 25. A student should obey right away in matters of health and safety.
____ 26. Students should not be allowed to waste their time.
____ 27. It is better for a teacher to be too strict than too easy.
____ 28. The student should choose the group he/she is to be in.